What is claimed:

1. A vessel perfusion assembly, comprising:

a tubular member having a first end adapted to enter a first vessel, a second end, and a lumen therebetween;

a plurality of tubular branches attached to the second end of the tubular member, each tubular branch having a lumen communicating with the lumen of the tubular member and a distal opening adapted to enter a second vessel;

a sealing mechanism disposed about the distal opening of each tubular branch; and

an extracorporeal cooler communicating with the lumen of the tubular member,

wherein, during use, the first end of the tubular member is inserted into the first vessel, the distal end of each tubular branch is inserted into the second vessel and sealed, and blood flows from the first vessel through the lumen of the tubular member, and the blood is cooled before flowing into each second vessel through each lumen of each tubular branch.

2. The assembly of claim 1, wherein the sealing mechanism comprises a balloon occluder.

3. The assembly of claim 1, wherein the first end of the tubular member includes a sharpened tip for piercing a wall of a body cavity.

4. The assembly of claim 1, wherein the first end of the tubular member includes a blunt tube insertable through an incision in a wall of a body cavity.

5. The assembly of claim 1, wherein each second vessel is an intercostal artery.

6. The assembly of claim 1, further comprising a pump for controlling the flow of blood through the lumen.

7. The assembly of claim 1, further comprising a thermostat for measuring the temperature of blood flowing through the lumen.

8. The assembly of claim 1, wherein the cooler is disposed within the lumen of the tubular member.

9. The assembly of claim 1, wherein each tubular member comprises a manometer for measuring blood pressure within each second vessel.

10. The assembly of claim 1, wherein each tubular member comprises elastomeric tubing.

11. A method for cooling the spinal vasculature of a patient, comprising the steps of:

providing a tubular member having a first end adapted to enter a first vessel, a second end, a lumen therebetween, a plurality of tubular branches attached to the second end of the tubular member, each tubular branch having a lumen communicating with the lumen of the tubular member and a distal opening adapted to enter a spinal or intercostal artery;

inserting the first end of the tubular member into the first vessel;

inserting the distal end of each tubular branch into the spinal or intercostal artery;

sealing the distal end of each tubular branch;

extracorporeally cooling the blood which flows from the first vessel through the lumen of the tubular member; and

flowing the cooled blood through each tubular branch into the spinal or intercostal arteries and into the spinal vasculature.

12. The method of claim 11, further comprising the step of severing the spinal or intercostal artery.

13. The method of claim 11, wherein the distal end of each tubular branch is inserted directly into the open end of the spinal or intercostal artery.

14. The method of claim 11, wherein the distal end of each tubular branch is inserted into the open end of the spinal or intercostal artery through a slit in the aorta.

15. The method of claim 11, wherein the distal end of each tubular branch is inserted

into the open end of the spinal or intercostal artery through a puncture in the wall of the aorta.

16. The method of claim 11, wherein the blood is oxygenated blood.

17. The method of claim 16, wherein the oxygenated blood is taken from the aorta of the patient.

18. The method of claim 11, wherein the blood flows simultaneously into a plurality of intercostal arteries.

19. The method of claim 11, wherein hypothermia is localized in the spinal vasculature, while keeping the rest of the body normothermic.

20. The method of claim 11, further comprising the steps of:

accessing the aorta upstream from the least one severed intercostal artery;

cooling oxygenated blood from the aorta; and

flowing the cooled oxygenated blood through the at least one intercostal artery.

21. The method of claim 11, wherein the flow of the cooled blood is controlled by a pump.

22. The method of claim 21, wherein the cooled blood is flowed at a rate of between 100 ml/minute to 1000 ml/minute.

23. The method of claim 11, wherein the oxygenated blood is cooled to between 4°C and 35°C.

24. The method of claim 11, wherein each tubular branch further comprises a balloon occluder disposed about the distal opening.

25. A method for cooling the spinal vasculature of a patient, comprising the steps of:

providing a plurality of tubular branches attached to the second end of a tubular member, each tubular branch having a lumen communicating with a lumen of the tubular member and a distal opening adapted to enter a spinal or intercostal artery;

inserting the distal end of each tubular branch into the spinal or intercostal artery;

sealing the distal end of each tubular branch;

extracorporeally cooling an oxygenated medium; and

flowing the oxygenated medium through each tubular branch into the spinal or intercostal arteries and into the spinal vasculature.

26. The method of claim 25, wherein the oxygenated medium is blood.

27. The method of claim 26, wherein the tubular member is inserted into and receives blood from a major artery.

28. The method of claim 27, wherein the artery is the aorta.